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The opinion in support of the decision being entered today was not written for publication and is not binding precedent of the Board.

Paper No. 24

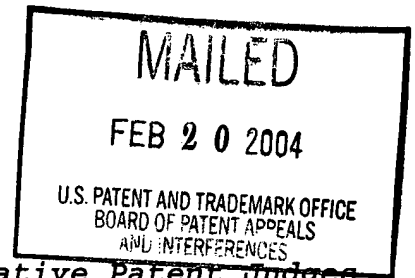
UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE BOARD OF PATENT APPEALS  
AND INTERFERENCES

***Ex parte*** HUI-JUNG WU, JAMES S. DRAGE, TERESA RAMOS,  
DOUGLAS M. SMITH, STEPHEN WALLACE, KEVIN RODERICK,  
and LISA BETH BRUNGARDT

Appeal No. 2001-1058  
Application No. 09/141,287

ON BRIEF



Before KRASS, JERRY SMITH, and GROSS, ***Administrative Patent Judges.***  
GROSS, ***Administrative Patent Judge.***

***DECISION ON APPEAL***

This is a decision on appeal from the examiner's final rejection of claims 1 through 13 and 16 through 29. Claims 14 and 15 have been canceled. Claims 30 and 31 have been withdrawn from consideration.

Appellants' invention relates to a method of forming a nanoporous dielectric coating on a substrate. Claim 1 is illustrative of the claimed invention, and it reads as follows:

1. A process for forming a nanoporous dielectric coating on a substrate which comprises:

(a) forming a substantially uniform alkoxysilane gel composition on a surface of a substrate, which alkoxysilane gel composition

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comprises a combination of at least one alkoxysilane, an organic solvent composition, water, and an optional base catalyst; wherein the organic solvent composition comprises a relatively high volatility solvent having a boiling point of about 120°C or less, and a relatively low volatility solvent selected from the group consisting of di(ethylene)glycol monomethyl ether, tri(ethylene)glycol monomethyl ether, tetra(ethylene)glycol monomethyl ether; di(propylene)glycol monomethyl ether, tri(propylene)glycol monomethyl ether, triethylene glycol monomethyl ether, and mixtures thereof;

(b) heating the substrate for a sufficient time and at a sufficient temperature in an organic solvent vapor atmosphere to thereby condense the gel composition; and then

(c) curing the gel composition to form a nanoporous dielectric coating on the substrate.

The prior art references of record relied upon by the examiner in rejecting the appealed claims are:

|                         |           |               |
|-------------------------|-----------|---------------|
| Smith et al. (Smith I)  | 5,736,425 | Apr. 07, 1998 |
| Smith et al. (Smith II) | 5,807,607 | Sep. 15, 1998 |

Hawley's Condensed Chemical Dictionary 393 (12th ed., Van Nostrand Reinhold Co. 1993). (Hawley)

Claims 1 through 13 and 16 through 29 stand rejected under 35 U.S.C. § 103 as being unpatentable over Smith I in view of Hawley.

Claims 1 through 13 and 16 through 29 stand rejected under the judicially created doctrine of obviousness-type double patenting as being unpatentable over claims 1 through 53 of Smith I or claims 1 through 39 of Smith II, in view of Hawley.

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Reference is made to the Examiner's Answer (Paper No. 15, mailed August 23, 2000) for the examiner's complete reasoning in support of the rejections, and to appellants' Brief (Paper No. 14, filed June 21, 2000) and Reply Brief (Paper No. 16, filed October 16, 2000) for appellants' arguments thereagainst.

#### **OPINION**

As a preliminary matter, we note that on page 5 of the Brief appellants indicate that "[t]he groupings of claims are as set forth in (a)-(b) of section VI above," wherein appellants merely refer to the entire group of claims 1 through 13 and 16 through 29. In the arguments section of the Brief, appellants argue all of the claims together with no separate arguments as to any individual claim. 37 C.F.R. § 1.192(c)(7) states:

For each ground of rejection which appellant contests and which applies to a group of two or more claims, the Board shall select a single claim from the group and shall decide the appeal as to the ground of rejection on the basis of that claim alone unless a statement is included that the claims of the group do not stand or fall together and, in the argument under paragraph (c)(8) of this section, appellant explains why the claims of the group are believed to be separately patentable. Merely pointing out differences in what the claims cover is not an argument as to why the claims are separately patentable.

Although appellants state on page 2 of the Reply Brief that the claims are to be considered separately, such indication must be made in the primary brief. Furthermore, appellants' statement in the Reply Brief for each claim, that "the art does not show" the

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limitation of that claim, merely points out differences in what the claims cover and, therefore, does not qualify as an argument as to why the claims are separately patentable. Accordingly, we have considered the claims as a single group for each ground of rejection, with claim 1 as representative.

We have carefully considered the claims, the applied prior art references, and the respective positions articulated by appellants and the examiner. As a consequence of our review, we will affirm both the obviousness rejection and also the obviousness-type double patenting rejections of claims 1 through 13 and 16 through 29. We also enter a new ground of rejection for claims 3, 16, and 20 under 35 U.S.C. § 112, second paragraph.

Regarding the rejection of claims 1 through 13 and 16 through 29 over Smith in view of Hawley, the examiner asserts (Answer, page 6) that Smith's three low volatility solvents are disclosed as being "candidates" and are thus not the only low volatility solvents contemplated by Smith. The examiner also states that "[i]n Smith et al. ('425), the only requirements for a low volatility solvent are its having a boiling point of 175 to 250 degrees Celsius and being 'miscible with both water and ethanol,'" which, the examiner asserts, are the same properties required by appellants' specification at page 6, first paragraph. Further, the examiner points to Hawley, which indicates that

diethylene glycol monomethyl ether has a boiling point of 194°C and is soluble in water, thereby satisfying the properties required by Smith. Thus, the examiner concludes (Final Rejection, page 4) that it would have been obvious to substitute diethylene glycol monomethyl ether for the solvent of Smith, since they have the same properties.

Appellants argue (Brief, pages 9-10 and Reply Brief, pages 7-8) that none of the art of record provides any suggestion to substitute the claimed monomethyl ether solvents for the glycols of Smith. However, as explained above, Smith states the properties necessary for the solvent, and the entry in Hawley indicates that diethylene glycol monomethyl ether (also called 2-(2-Methoxyethoxy)ethanol) has those properties. Therefore, in the absence of evidence to the contrary, the skilled artisan would have expected diethylene glycol monomethyl ether and ethylene glycol to produce similar results. Furthermore, although appellants argue (Brief, page 12 and Reply Brief, page 9) that the use of ethylene glycol does not suggest the use of diethylene glycol monomethyl ether because they are not analogs, homologs, or isomers of one another, the two types of solvents are very similar. Specifically, various ethers, in particular alkoxyethanols, are derived from ethylene glycol. Therefore, in

the absence of evidence to the contrary, it would have been obvious to the skilled artisan to select one for the other.

Appellants contend (Brief, page 10) that because the solvents are incorporated into a complex composition, the similarity of boiling points between the claimed solvents and the glycols of Smith would not have predicted success in selecting a solvent. Additionally, appellants argue (Brief, page 12) that Smith's glycols "are believed to undesirably crosslink and produce a low storage stability composition." However, as discussed *supra*, the selection of one solvent for the other is based on more than similar boiling points; the solvents themselves are similar. Furthermore, appellants have provided no evidence that the skilled artisan would not have selected one solvent instead of the other. In fact, appellants have equated the two types of solvents in the specification and in dependent claims 3, 16, and 20, thereby supporting the examiner's assertion that it would have been obvious to substitute one for the other.

We note that appellants urge (Reply Brief, page 9) that "the optional presence of additional solvents in certain claims" is irrelevant to the issue of the obviousness of monomethyl ethers. However, the claiming of glycols in certain dependent is quite relevant as the glycols are not recited as optional additional solvents but rather as substitutes for the claimed ethers of

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claim 1. Further, even if appellants intended for dependent claims 3, 16, and 20 to list optional additional solvents, the specification indicates that the ethers and glycols are equally useful as the low volatility solvent, not that the glycols are merely optional additions. Therefore, the disclosure and claiming of glycols as equally useful supports the examiner's position. Accordingly, we will sustain the obviousness rejection of claims 1 through 13 and 16 through 29 over Smith I in view of Hawley.

Regarding the obviousness-type double patenting rejection of claims 1 through 13 and 16 through 29 over Smith I or Smith II in view of Hawley, appellants' arguments (Brief, page 13) rely on the same reasons given against the combination of Smith I and Hawley. Since we have found such arguments unpersuasive, we will sustain the obviousness-type double patenting rejection of claims 1 through 13 and 16 through 29.

Under the provisions of 37 C.F.R. § 1.196(b), we enter the following new ground of rejection against appellants' claims 3, 16, and 20:

Claims 3, 16, and 20 are rejected under 35 U.S.C. § 112, second paragraph, as being indefinite. Claim 1 recites that the organic solvent composition

comprises . . . a relatively low volatility solvent selected from the group **consisting of**

di(ethylene)glycol monomethyl ether,  
tri(ethylene)glycol monomethyl ether,  
tetra(ethylene)glycol monomethyl ether;  
di(propylene)glycol monomethyl ether,  
tri(propylene)glycol monomethyl ether, triethylene  
glycol monomethyl ether, and mixtures thereof.  
(Emphasis ours)

The phrase "consisting of" is recognized as meaning that no compositions other than those listed may be used for the low volatility solvent. Claim 3 depends ultimately from claim 1 and recites a low volatility solvent "selected from the group consisting of" all of the compositions recited in claim 1 plus several others. Claim 20 depends from claim 1 and recites that the composition comprises an organic solvent

selected from the group consisting of methanol, ethanol, n-propanol, isopropanol, n-butanol, ethylene glycol, 1,4-butylene glycol, 1,5-pentanediol, 1,2,4-butanetriol, 1,2,3-butanetriol, 2-methyl-propanetriol, 2-(hydroxymethyl)-1,3-propanediol, 1,4,1,4-butanediol, 2-methyl-1,3-propanediol, tetraethylene glycol, triethylene glycol monomethyl ether, glycerol, and mixtures thereof.

All but the first five solvents listed are disclosed as low volatility solvents and are different from those recited in claim 1. Thus, claims 3 and 20 appear to be inconsistent with claim 1 as claim 1 includes the phrase "consisting of." Further, claims 3 and 20 expand the group of organic solvents recited in claim 1 and, therefore, do not further limit claim 1, from which they depend.



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Claim 16 depends from claim 14, a canceled claim. Thus, the scope of claim 16 is completely indefinite. However, we should note that if claim 16 were to be amended to depend from claim 1, either directly or indirectly, then claim 16 would have the same deficiency as claims 3 and 20 as it would expand the group of low volatility solvents listed in claim 1.

#### **CONCLUSION**

The decision of the examiner rejecting claims 1 through 13 and 16 through 29 under 35 U.S.C. § 103 and also under the judicially created doctrine of obviousness-type double patenting is affirmed. In addition to affirming the examiner's rejection of all the claims, this decision contains a new ground of rejection pursuant to 37 C.F.R. § 1.196(b) (amended effective Dec. 1, 1997, by final rule notice, 62 Fed. Reg. 53,131, 53,197 (Oct. 10, 1997), 1203 Off. Gaz. Pat. & Trademark Office 63, 122 (Oct. 21, 1997)). 37 C.F.R. § 1.196(b) provides, "A new ground of rejection shall not be considered final for purposes of judicial review."

Regarding any affirmed rejection, 37 C.F.R. § 1.197(b) provides:

(b) Appellants may file a single request for rehearing within two months from the date of the original decision . . . .

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37 C.F.R. § 1.196(b) also provides that the appellant, WITHIN TWO MONTHS FROM THE DATE OF THE DECISION, must exercise one of the following two options with respect to the new ground of rejection to avoid termination of proceedings (37 C.F.R. § 1.197(c)) as to the rejected claims:

(1) Submit an appropriate amendment of the claims so rejected or a showing of facts relating to the claims so rejected, or both, and have the matter reconsidered by the examiner, in which event the application will be remanded to the examiner. . . .

(2) Request that the application be reheard under § 1.197(b) by the Board of Patent Appeals and Interferences upon the same record. . . .

Should the appellants elect to prosecute further before the Primary Examiner pursuant to 37 C.F.R. § 1.196(b)(1), in order to preserve the right to seek review under 35 U.S.C. §§ 141 or 145 with respect to the affirmed rejection, the effective date of the affirmance is deferred until conclusion of the prosecution before the examiner unless, as a mere incident to the limited prosecution, the affirmed rejection is overcome.

If the appellants elect prosecution before the examiner and this does not result in allowance of the application, abandonment or a second appeal, this case should be returned to the Board of Patent Appeals and Interferences for final action on the affirmed rejection, including any timely request for reconsideration thereof.

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No time period for taking any subsequent action in connection with this appeal may be extended under 37 C.F.R. § 1.136(a).

**AFFIRMED**  
**37 C.F.R. § 1.196(b)**

  
ERROL A. KRASS  
Administrative Patent Judge

*Jerry Smith*  
JERRY SMITH  
Administrative Patent Judge

*Anita Pellman Gross*  
ANITA PELLMAN GROSS  
Administrative Patent Judge

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